## REMARKS

Applicants thank the Examiner for the courtesy extended to Applicants' attorney during the interview held June 15, 2006, in the above-identified application. During the interview, Applicants' attorney explained the presently-claimed invention and why it is patentable over the applied prior art, and discussed other issues raised in the Office Action. The discussion is summarized and expanded upon below.

The rejection of Claims 1-3 and 5-7 under 35 U.S.C. §103(a) over either US 2003/0003261 (Saito et al) or US 2003/0099807 (Berneth et al), in view of JP 2001-232945 (Morishima et al) and JP 08-100011 (Sugita et al), and further in view of the following additional prior art: JP 03-146393, JP 11-058973, US 5,316,899 (Miyadera et al) and JP 63-296986, is respectfully traversed.[1]

The present invention relates to an optical recording medium and method of use thereof, the optical recording medium comprising at least a supporting substrate, a recording layer on the supporting substrate where the recording layer contains a trimethine cyanine dye that contains a trimethine chain with two particular nitrogen-containing heterocyclic rings positioned on ends of the trimethine chain, as recited in the claims, a dielectric layer on the recording layer and a light-transmitting layer on the dielectric layer.

The particular trimethine cyanine dye also must meet the following limitations:

(1) the minimum value $n_{min}$ of its refractive index n (real part of the complex refractive index) is within the range of 370 to 425 nm;

[1] That the additional prior art is not listed in the statement of the rejection is irrelevant; reliance thereon is all that is necessary. "Where a reference is relied on to support a rejection, whether or not in a 'minor capacity,' there would appear to be no excuse for not positively including the reference in the statement of rejection." *In re Hoch*, 428 F.2d 1341, 166 USPQ 406, 407 n.3 (CCPA 1970). See also MPEP 706.02(j).

(2) a refractive index n of 1.2 or lower with respect to the wavelength of the recording/reproducing laser light; and

(3) when absorbing the laser light, it melts or degrades to bring about a change in the refractive index, thereby effecting recording of the information.

The specification contains comparative data showing at least the significance of above limitation (2). Examples 3 and 4, which use the cyanine dyes AA-1 and AA-2, respectively, as described in the specification at page 23, are according to the presently-claimed invention. Comparative Examples 1 to 3 use other cyanine dyes, designated as cyanine dyes a, b and c (the latter two being trimethine dyes), respectively, and as described in the specification at page 38, are outside the terms of the present claims. The physical data for these cyanine dyes are shown in Table 1 at page 39 of the specification, wherein all of the comparative examples had a refractive index at a recording/reproducing wavelength of 405 nm, of greater than 1.2.

The examples and comparative examples were subjected to recording/reproducing tests, with the results described therein, as described in the specification beginning at page 40, as follows:

> The sample optical disk of Example 1 was mounted on an optical disk tester (Product name: DDU-1000, manufactured by Pulstech Industrial Co., Ltd.). Using an objective lens with a NA of 0.85, a recording laser beam having a wavelength in the blue range (405 nm) was focused by a focusing lens placed within a recording head onto the land area of the optical disk to effect recording/reproducing information. The laser beam was shone from the light-transmitting layer side of the optical disk. 1.7 RLL-modulated signal (8T) was used as the recording signal with information recorded only on one track. Multiple pulse train was used for recording: Setting was made in such a manner that, assuming the length of the top pulse of the pulse train to be 1T, the length of the last pulse was 1T and the length of each of multiple pulses between the top and the last pulses was 0.4T (T = clock period). Information was recorded in such a manner that, with a recording power of 10 mW and a minimum pit length of 0.16 $\mu$m, the recording line density was 0.12 $\mu$m of the channel bit length/bit. The recorded information was subsequently reproduced with a reproducing

> power of 0.4 mW and, as a result, good signal characteristics were obtained.
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> Likewise, the sample optical disks of Examples 2 to 4 and Comparative Examples 1 to 3 were each tested for the recording/reproducing performance. Good signal characteristics were obtained in each of the sample optical disks of Examples 2 to 4, whereas the degree of modulation was small and the C/N ratio was insufficient after recording in the sample optical disk of Comparative Example 1. The sample optical disks of Comparative Examples 2 and 3 required the recording power as large as about 15 mW and the sensitivity of these disks was significantly low. Moreover, the degree of modulation was small and the C/N ratio was insufficient after recording in these sample optical disks.

The applied prior art could not have predicted the above-discussed results. Indeed, Applicants describe in the specification at page 5, lines 5-9 that no organic dye materials have been known that melt or degrade to cause the refractive index to change from a relatively low value to a relatively high value by the wavelength range of the recording/reproducing laser of 390-420 nm.

Saito et al discloses an optical recording medium wherein recording/playback is effected with a laser beam having a wavelength of 450 nm or less, and wherein a sputter layer having a thickness within a range of from 1 to 80 nm is formed between the recording layer and a cover layer ([0012]), and a metal-containing light-reflecting layer is formed between the recording layer and a substrate ([0027]-[0028]), wherein the recording layer preferably is formed of an organic compound having a maximum absorption of 400 nm or less ([0030]) wherein cyanine, aminobutadiene, benzotriazole and phthalocyanine compounds are disclosed as preferred ([0031]), and wherein a cyanine organic compound having an absorption wavelength of 373 nm, identified only as "B", is exemplified (Example 2; [0078]).

Berneth et al discloses an optical recording medium wherein the recording layer is made of an organic material for absorbing light of wavelength of 360 to 460 nm ([0018]), which organic material may be selected from dyes and pigments belonging to many different

classes, including cyanines ([0024]). As confirmed by the Examiner during the above-referenced interview, the Examiner additionally relies on embodiment 7, which shows a particular trimethine cyanine dye. However, it is noted that this exemplified dye is not within the terms of the present claims.

Recognizing that neither Saito et al nor Berneth et al discloses the particular trimethine cyanine dyes of the present claims, the Examiner relies on Morishima et al and Sugita et al, and the so-called additional prior art. Morishima et al is drawn to an optical recording media, which records data with light of wavelength 550 nm or less, the recording layer containing a compound of formula (I) therein which contains a 5- or 6-membered heterocyclic group at each end with a particular substituted or non-substituted methine group connecting them, which formula (I) appears to be inclusive of thousands of, if not more, compounds. While the compounds of formula (I) may include a benzoxazole nucleus [(0028)], none of exemplified compounds A-1 through A-61 in Morishima et al contain such a group.

Sugita et al discloses a photopolymerization initiator prepared by mixing a particular cationic colorant and a particular boron-based catalyst, wherein various colorants are exemplified. The Examiner relies on dye 3, which is a particular benzoxazole trimethine cyanine dye, which has a $\lambda_{max}$ of 492 nm.

The Examiner holds that it would have been obvious to modify the examples of Saito et al or Berneth et al by using cyanine dyes such as those used in Examples 1, 2, 4 and 6 in Table 2 of Morishima et al, which have absorption maxima "nearer to the 405 nm lasers used," as evidenced by Sugita et al, "noting the direction to cyanine dyes" within Saito et al and Berneth et al "with a reasonable expectation of having high sensitivity to the laser."

In reply, Examples 1, 2, 4 and 6 in Table 2 of Morishima et al, i.e., compounds A-4, A-10, A-16 and A-24, respectively, while employing trimethine cyanine dyes, do not contain

benzoxazole rings. While the benzoxazole trimethine dye, i.e., dye 3, of Sugita et al may be encompassed by formula (I) of Morishima et al, and having a $\lambda_{max}$ less than the 550 nm recording wavelength maximum of Morishima et al, nevertheless, it is only with the present disclosure as a guide that one skilled in the art would use a trimethine cyanine dye within the terms of the present claims in Saito et al or the dielectric layer-containing embodiment of Berneth et al.

While the Examiner relies on the so-called additional prior art to show that trimethine cyanine dyes are known in the art that have benzoxazole moieties as both terminal moieties and for use in optical recording media, these disclosures are, in and of themselves, irrelevant. There is no disclosure or suggestion in this additional prior art to use such compounds in an optical recording medium of the type claimed herein.

For all the above reasons, it is respectfully requested that the rejection be withdrawn.

Applicants respectfully submit that all of the present claims in this application are now in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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